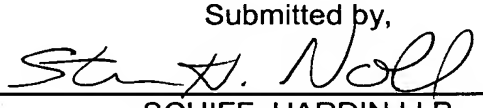
REMARKS

The present Amendment makes editorial changes in the Specification and the claims and adds an abstract, to conform the present PCT application to the requirements of the United States Patent Practice. The cancellation of 1-7 in favor of the claims presented herein has been undertaken solely because the amount of bracketing and underlining which would have been necessary to conform claims 1-7 to the requirements to 35 USC Section 112, second paragraph, would have been unduly burdensome and confusing. No change in the language of any claim has been made for the purpose of distinguishing any claims over the teachings of the prior art. Accordingly, the cancellation of claims 1-7 is not considered by the applicants as a surrender of any of the subject matter encompassed within the scope of claims 1-7.

Early consideration of the application is respectfully requested.

Submitted by,



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SCHIFF, HARDIN LLP
CUSTOMER NO. 26574
Patent Department
6600 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606
Telephone: 312/258-5790
Attorneys for Applicants.

SPECIFICATION

TITLE

"ULTRASONIC SHOCK WAVE HEAD FOR USE IN LITHOTRIPSY"

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to an ultrasonic shock wave head for lithotripsy.

Description of the Prior Art

An ultrasonic shock wave head for lithotripsy (as [it] is known, for example, [known] from WO 95/24159 or DE 37 39 390 A1) [comprises a plurality] has a number of individual components that are arranged in a housing. The individual components, in particular the lens used for focusing of the ultrasonic shock waves and the actual shock wave source (i.e. the transducer generating the ultrasound), must be spatially positioned exactly relative to one another in [a] the housing of the ultrasonic shock wave head in order to ensure a reproducible position of the focus. This is connected with a significant production-related effort.

SUMMARY OF THE INVENTION

An object of the present [The] invention is [now based on the object] to [specify] provide a ultrasonic shock wave head for lithotripsy that is simple to produce and in which a high reproducibility of the position of the focus is ensured.

The above object is achieved in accordance with the present invention by an ultrasonic shock wave head for lithotripsy, having a shock wave source

and an acoustic lens for focusing the ultrasonic shock wave generated by the shock wave source, wherein the lens has a support housing for the shock wave source integrally molded with the lens as one piece.

[The cited object is achieved according to the invention with an ultrasonic shock wave head with the features of the patent claim 1.] Since a [bearing] support housing for the shock wave source is integrally molded as one piece on the acoustic lens, a high reproducibility of the relative positioning [reciprocal bearing] of the acoustic lens and shock wave source is ensured with a simultaneously simpler, cost-saving manufacture. The lens [Lens] and [bearing] the support housing for the shock wave source thus form an integral component that can be produced in a single [work] fabrication operation, for example [via] using an injection molding type [molding-related] method.

[Further advantageous embodiments of the invention result according to the sub-claims.

For further explanation of the invention, reference is made to the exemplary embodiment of the drawing, in whose single Figure a device according to the invention is schematically illustrated.]

DESCRIPTION OF THE DRAWINGS

The single figure is a side sectional view of an ultrasonic shock wave head constructed in accordance the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

According to the invention, an [inventive] ultrasonic shock wave head [comprises] has an annular shock wave source 2 with planar radiation surface 4. An acoustic lens 6 is arranged at a distance from this radiation surface 4,

[which] the acoustic lens 6 [is] being biconvex in the exemplary embodiment and focusing [which focuses] the ultrasonic shock waves emitted by the shock wave source 2 in a focus (not shown in the figure [Figure]).

A [bearing] support housing 8 for accommodation of the shock wave source 2 is integrally molded as one piece on the acoustic lens 6. This [bearing] support housing 8 [comprises] has an inner, approximately hollow-cylindrical wall part 10 that is concentrically surrounded by an outer wall part 12 (likewise integrally-molded on the lens 6). The hollow space 14 surrounded by the inner wall part 10 extends up to the acoustic lens 6 and empties into the coupling space 16 bounded thereby [by this], [which] the coupling space 16 [is] being filled with a coupling fluid (normally water) in operation of the device. The hollow space 14 serves for acquisition of an image-generating ultrasonic transducer arrangement that generates an A-image or a B-image and serves for monitoring of the correct positioning of the focus in the body of a patient.

Annularly circumferential shoulders or sections 18 [or, respectively,] and 20 are integrally molded on the outer surface of the inner wall part 10 and the inner surface of the outer wall pear 12, on which shoulders or segments 18 [or, respectively,] and 20 the shock wave source 2 [rest] rests on the edge of its [radiation] radiating surface 4, respectively over an interleaving sealing rings [ring] 22 [or, respectively,] and 24. An approximately annular change 26 located between the shock wave source 2 and the acoustic lens 6 and filled with fluid in operation is sealed fluid-tight [with the aid of] by this sealing ring

22, 24. In the exemplary embodiment, further sealing rings 28, 30 are optionally provided at the sealing rings 22, 24 in order to seal the chamber 26.

The inner wall part 10 is provided with an external threading 32 on its outer circumference and the outer wall part is provided with an inner threading 34 into which are screwed compression [pressure] rings 36 [or, respectively,] and 38 with which the shock wave source 2 is pressed against the sections 18, 20 and is fixed in this position.

The [bearing] support housing 8 [moreover comprises] and additionally has fluid-conducting channels 40, 42 that interconnect with the chamber 26 [or, respectively,] and the coupling space 16 before the acoustic lens 6 and serve for filling the chamber 26 [or, respectively,] and the coupling space 16 with the coupling fluid. The support [bearing] housing 8 is [moreover] provided in the region of the acoustic lens 6 on its outer circumference with an annular, circumferential recess 44 that serves for fluid-tight application of an elastic coupling membrane.

The acoustic lens 6 and the [bearing] support housing 8 form a one-piece, integral component that is comprises of a polymer material and can be produced in an injection-molding method in a single [work] fabrication step. Since the [bearing] support housing 8 formed in this manner for the shock wave source 2 simultaneously forms the acoustic lens 6 or[, in the reversed approach,] conversely the acoustic lens 6 is simultaneously the support [bearing] housing 8 for the shock wave source 2, it is ensured that, without additional adjustment measures, lens 6 and shock wave source 2 are always

positioned correctly both with regard to [the] separation (spacing) and with regard to the axial alignment (center position and angle setting of the axis).

Although modifications and changes may be suggested by those skilled in the art, it is the intention of the inventors to embody within the patent warranted heron all changes and modifications as reasonably and properly come within the scope of their contribution to the art.

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CH1\ 4333291.1